

Exhibit 4

No. 105, ORIGINAL

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In The
Supreme Court of the United States

STATE OF KANSAS,

Plaintiff,

v.

STATE OF COLORADO,

Defendant,

and

UNITED STATES OF AMERICA,

Defendant-Intervenor.

ARTHUR L. LITTLEWORTH, Special Master

FOURTH REPORT

October 2003

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that the 130,000 acre-feet average was realistic. *Id.* at 113. Historical pumping from 1970-94, after well development had stabilized, averaged about 170,000 per year, with a peak of about 287,000 acre-feet. *Id.* at 111-12; Kan. Exh. 1093 at 58. However, those numbers reflect pumping before replacement water was required. The Kansas estimates of pumping assume that sufficient amounts of replacement water will be available, and will not act additionally to constrain pumping. RT Vol. 237 at 71-72; RT Vol. 254 at 55-56. Because of this assumption, Kansas experts testified that their analysis was "somewhat insensitive" to the exact magnitude of pumping. RT Vol. 237 at 72, 80. But as a corollary, the availability of replacement water becomes a critical premise. Colorado's estimate of future pumping, as constrained by the availability of replacement supplies, averaged 111,047 acre-feet per year. Colo. Exh. 1408, Table 13.

2. Kansas' Redistribution of Pumping.

A more important part of Kansas' prospective compliance analysis lay not in the amount of assumed pumping, but rather in the way in which the model distributes pumped water. In all prior versions of the H-I model, the use of groundwater had been based on the general assumption that if a section of land contained a well, all of the acreage within that section was assumed to be irrigated with groundwater. RT Vol. 239 at 6, 11-12. This was reflected in the model as a percentage of the acreage in a ditch service area that was irrigated with groundwater. For example, with respect to the Bessemer Canal, the model assumed that 100% of the area was irrigated with wells, while for the Fort Lyon Canal the percentage was only 30%. Kan. Exh. 1093, Table 4; Colo. Exh. 1353, Table

2; RT Vol. 238 compliance for sions of the H-I groundwater a prospective cor change, describ Vol. 263 at 108 ance model b distribution of depletions fore from an avera mately 2500 ac

In its pro tributed pump 241 at 121-22; 63. This distr groundwater, groundwater. according to K "excess pumpi 144. In reality groundwater s tive use leads consumptive u 22. Kansas e model allowed surface water, groundwater v pumped water Vol. 237 at 146 the historic r not fit the den of groundwat